Emotional Intelligence Meets Artificial Intelligence:
Redefining Human–Machine Interactions

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ABSTRACT

The convergence of emotional intelligence (EI) and artificial intelligence (AI) is transforming human-machine interactions by integrating empathy, context, and adaptability into technology. This chapter explores how embedding EI into AI systems enhances their ability to detect, interpret, and respond to human emotions, improving experiences in healthcare, education, and customer service. It examines the benefits of emotionally intelligent AI, such as personalized interactions and stronger trust, alongside challenges like bias, privacy concerns, and the complexity of human emotions. Ethical considerations are addressed, emphasizing transparency, consent, and accountability. By fostering emotionally attuned AI, we move towards a future where machines act not merely as tools but as empathetic collaborators, reshaping industries and advancing human-centred innovation.

1. INTRODUCTION

The tides of human-machine interactions are turning, moving at a rapid pace towards what many now call a digital era. In today's world, with artificial intelligence at the cusp of widespread integration, we have come a long way from an era characterized by mere human-computer exchanges. A defining feature that shapes these human-machine interactions is emotional intelligence: conventional wisdom assumes a sort of binary mindset. Systems designed for calculations and processing of digital data are strictly distinct from systems responsible for processing emotional information (Diareme, K. et al., 2022) . This stark line of demarcation is now being challenged by the fusion of AI and emotional intelligence. Through reviewing recent literature in the field, professionals note the growing need to understand that AI can inspire thought processes and emotions. With the growing capability of AI to engage with users, AI is gaining an emotional intelligence that can affect the user's psychological state.

Emotional intelligence seemed to be developed independently of the concept of artificial intelligence. Being a somewhat new concept, the theoretical and empirical foundations of emotional intelligence draw upon previous ideas that can be traced back to studies in psychology, particularly human behavior.

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Emotional intelligence is the first concept that connects the emotional part with communication skills. These skills are revolutionized in the digital era, and their impact has never been as important as it is today. Competence in communication, for example, is now recognized to a considerable extent by one's emotional intelligence. Emotional intelligence has become more recognized as EI competencies are well-established behavioral style competencies that have been explored since the 1920s (Bonesso et al., 2020). People used to view artificial intelligence as a futuristic concept, but developments in AI have certainly made it fast-catching on in common discourse.

In the cult classic movie "Bladerunner," the capacity of machines to emote is deferred. Instead, it is empathy, feeling, and emoting by humans that define the empathy box. However, today's science fiction doesn't have to wait until 2080 for Roy and Pris to teach machines to be emotionally intelligent. This chapter argues that the time is ripe to combine two AI applications: strong signals of having achieved human emotional replications via conversational agents are available, as are proofs that integrating emotional intelligence in AI models raises the likelihood of successful machine learning predictions.

Technology and emotional understanding are both constantly evolving: what is not possible to be labeled as such for conversational agents simulating EQ now might be within months. Positive user feedback is consistent with the increasing attention that developers give to programs' emotional competencies, which is approaching a threshold. Therefore, what's providing AI conversational agents with a natural emotional luggage currently looks most forward-looking: a timely conjunction of two spirals, that of conversational agents' circulation with that of the appreciation of their emotional excellence, extracted by humans; a conjunction that lays the foundations of the present chapter that needed building the most.

The aim of this chapter is to explore the interconnections between AI and emotional intelligence, from both a social and psychological perspective, with an emphasis on human factors. We will address the following research questions: Should AI systems be equipped with emotional intelligence? What implications can this have for human-AI interaction? We ultimately aim to equip the reader with a greater understanding of the role and implications of soulful machines in daily life. Moreover, the chapter aims to clarify the misconception that AI can be emotionally intelligent. We will unravel whether machines can actually understand emotions by addressing the psychology of emotions, human communication, and data management. The potential benefits offered by equipping AI with emotional intelligence, like the ability to enhance life through personalized experiences, are discussed.

2. UNDERSANDING EMOTIONAL INTELLIGENCE

Emotional intelligence (EQ) is a popular construct that covers multiple abilities related to the perception, understanding, and expression of human emotions (Singh et al., 2022 ; D'Amico & Geraci, 2023; Husain et al., 2022). One of the most influential models defines emotional intelligence as the capability to recognize and understand one's own feelings and those of others, to motivate oneself, and to manage one's emotions effectively (Drigas et al., 2021; Goleman, 2021). In the literature, four abilities are recognized as central components of EQ. The first important aspect is self-awareness—the ability to understand various emotions and their boundaries in oneself. Self-aware individuals are believed to possess a deeper understanding of what they are feeling, act with conviction and confidence, accept compliments, and disagree without being overly defensive (Carden et al., 2022; Chon & Sitkin, 2021; Fleming, 2021). The second ability is emotional regulation, the capacity to manage emotions and moods (Geßler et al., 2021; Extremera et al., 2020; Broderick, 2021). The third component, motivational traits,